

## WHAT IS CLAIMED IS:

- 1/ A brake system for braking aircraft wheels, the brake system being of the type which, for each wheel, comprises a stator central portion coaxially surrounding a wheel  
5 axle on which a rotor annular portion is mounted to rotate, and a succession of brake disks disposed between the stator central portion and the rotor annular portion with alternate disks being constrained to rotate with one and the other of said portions, said stator central  
10 portion being provided with a brake collar equipped with a plurality of sets of pistons and, rigidly secured to said collar, a torsion tube internally provided with a transverse annular web, a centering bearing being interposed between the annular web and the axle, wherein  
15 the centering bearing has structural characteristics that vary circumferentially in a distribution configuration suitable for generating different bearing stiffnesses along two orthogonal axes contained in a plane that is perpendicular to the axis of the axle.  
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- 2/ A brake system according to claim 1, wherein the structural characteristics of the centering bearing that vary circumferentially relate to the radial thickness, so as to define at least one partial annular bearing.  
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- 3/ A brake system according to claim 2, wherein an even number of partial annular bearings are provided that are diametrically opposite in pairs.
- 30 4/ A brake system according to claim 2, wherein the partial annular bearing or each of the partial annular bearings extends over an angular sector essentially lying in the range 15° to 60°.
- 35 5/ A brake system according to claim 2, wherein the partial annular bearing(s) is/are offset angularly so as

to be centered on a direction corresponding substantially to a real horizontal or vertical direction.

6/ A brake system according to claim 2, in which the centering bearing is defined by a tube foot which is formed integrally with the transverse annular web, and by at least one annular ring associated with the tube foot or with the axle, wherein the partial annular bearings are provided on the tube foot, and are defined by locally recessing said tube foot.

7/ A brake system according to claim 2, in which the centering bearing is defined by a tube foot which is formed integrally with the transverse annular web, and at least one annular ring associated with the tube foot or with the axle, wherein the partial annular bearings are provided on an annular ring associated with the tube foot, and are defined by locally recessing said annular ring.

8/ A brake system according to claim 7, wherein the partial annular bearings are supplemented by alternating bearings, each of which has a single bearing surface either on the outside or on the inside of the annular ring in question.

9/ A brake system according to claim 2, in which the centering bearing is defined by a tube foot which is formed integrally with the transverse annular web, and at least one annular ring associated with the tube foot or with the axle, wherein the partial annular bearings are provided on an annular ring associated with the axle, and are defined by locally recessing said annular ring.

10/ A brake system according to claim 2, in which the centering bearing is defined by a tube foot which is formed integrally with the transverse annular web, and at

least one annular ring associated with the tube foot or with the axle, wherein the partial annular bearings are provided on the axle, and are defined by locally recessing said axle.

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11/ A brake system according to claim 1, wherein the structural characteristics of the centering bearing that vary circumferentially relate to the component material, by alternating annular zones made of materials of  
10 different stiffnesses, said annular zones being disposed over predetermined angular sectors.

12/ A brake system according to claim 1, wherein the structural characteristics of the centering bearing that  
15 vary circumferentially relate to the component material which is selected to be anisotropic so as to have annular zones of different stiffnesses, said annular zones being disposed over predetermined angular sectors.